

# Monthly Marine Biotoxin Report

January 2005

Technical Report No. 05-09

## INTRODUCTION:

This report provides a summary of biotoxin activity for the month of January 2005. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

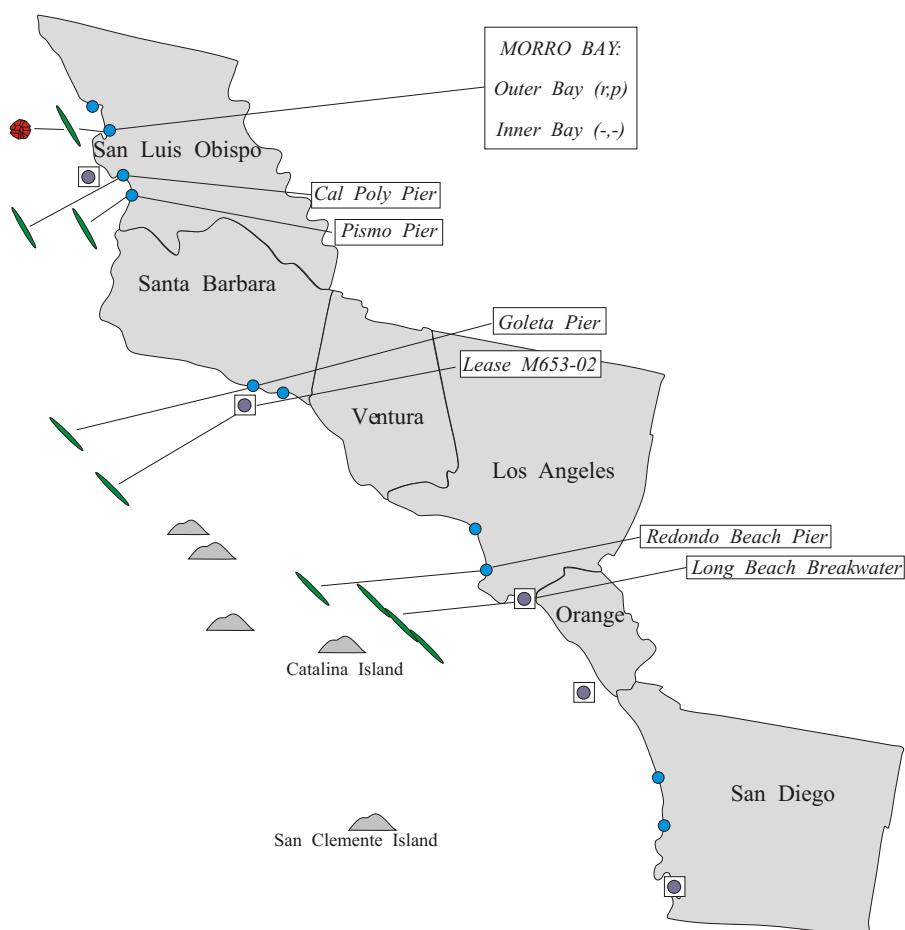
### Southern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* was only observed at one sampling station inside Morro Bay (San Luis Obispo) during January (Figure 1).

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Figure 1. Distribution of toxin-producing phytoplankton in Southern California during January, 2005.



### Relative Abundance of Known Toxin Producers

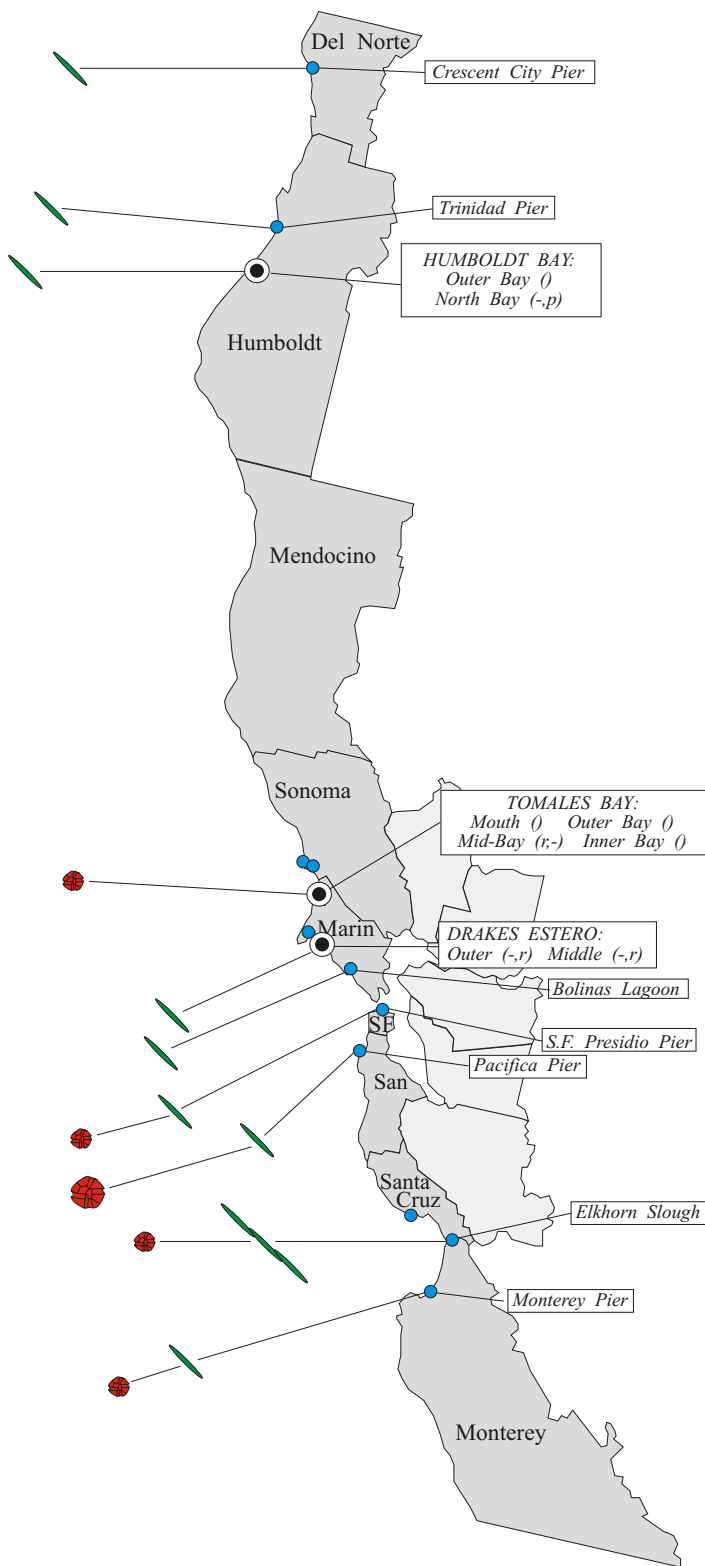
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (less than 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

#### MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:  
(a,p) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 2. Distribution of toxin-producing phytoplankton in Northern California during January, 2005.



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Observations in January represent a significant decrease in relative abundance and geographical distribution compared to the elevated numbers observed in December.

Low levels of PSP toxins continued to be detected at all sampling sites in San Luis Obispo County during January (Figure 3). It was not until the last week of the month that toxin concentrations inside Morro Bay dropped below the detection limit.

#### Domoic Acid

*Pseudo-nitzschia* was observed at sites between San Luis Obispo and Los Angeles counties in January (Figure 1). The distribution and relative abundance of this diatom decreased compared to December's observations.

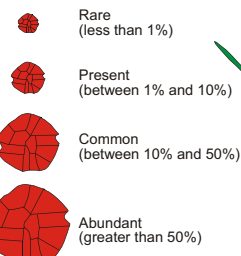
#### Non-toxic Species

Phytoplankton diversity and cell density were generally quite low as a result of winter storm conditions. *Cochlodinium* was common at Cayucos (San Luis Obispo County), though cell numbers for this and other species were low. The diatom *Chaetoceros* was common at a number of Southern California locations, as was the dinoflagellate *Gymnodinium sanguineum*. The latter species was abundant in Avila (San Luis Obispo County)

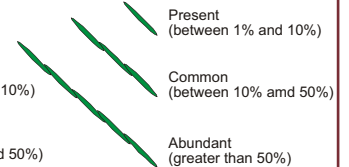
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#### Relative Abundance of Known Toxin Producers

##### Alexandrium Species



##### Pseudo-nitzschia Species



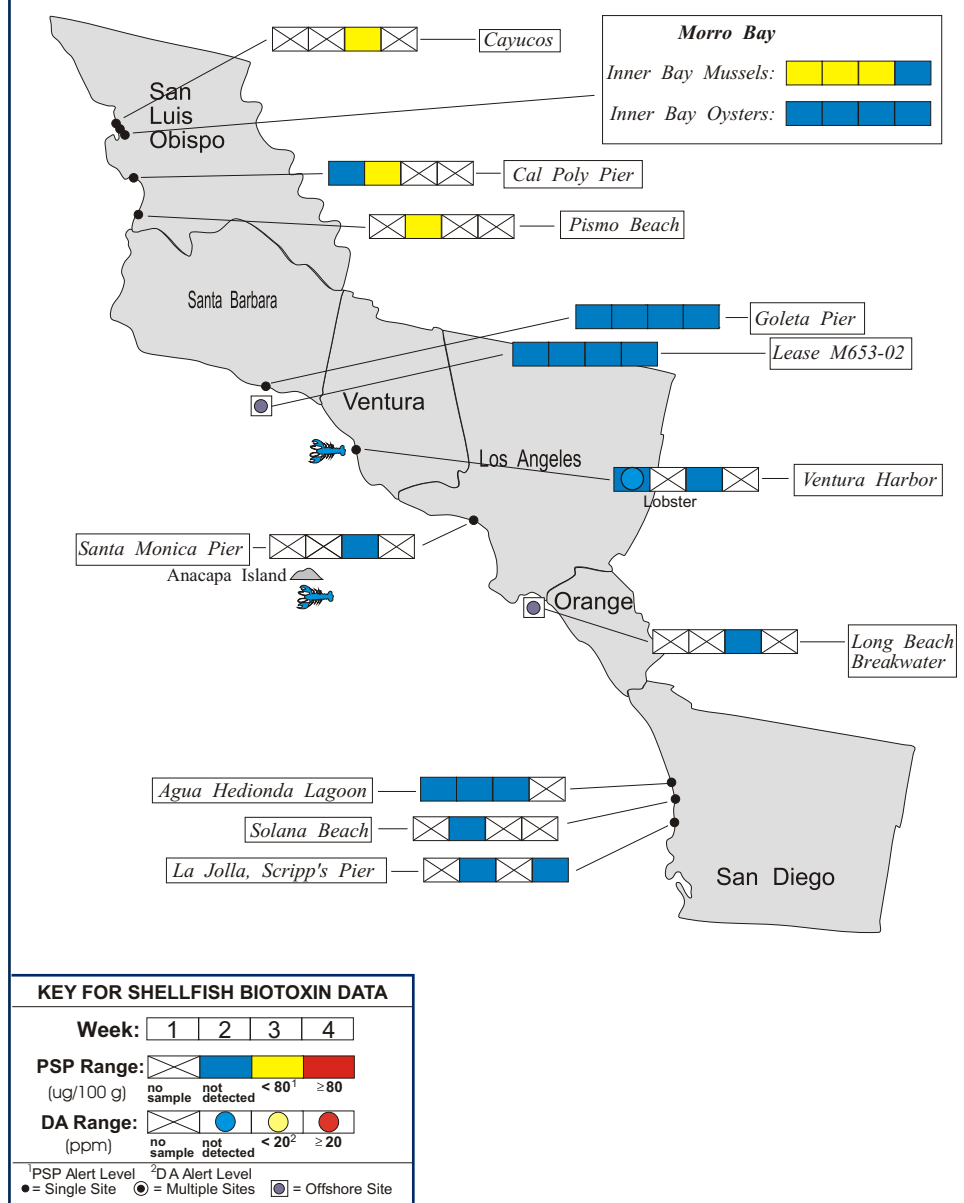
#### MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:

(A,P) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 3. Distribution of shellfish biotoxins in Southern California during January, 2005.



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at the beginning of January.

#### Northern California Summary:

##### Paralytic Shellfish Poisoning

*Alexandrium* was observed at several Northern California sites in January (Figure 2). In general the abundance of this dinoflagellate increased along the coast between Marin and Monterey, but decreased farther north at sites in Humboldt County.

Low concentrations of PSP toxins were detected at several locations along the coast between Marin and Monterey in January (Figure 4). Detectable levels of these toxins persisted in mussels from Santa Cruz from January 12 through the end of the month.

##### Domoic Acid

*Pseudo-nitzschia* was observed along most of the Northern California coast in January (Figure 2). The relative abundance of this diatom decreased noticeably at sites along the coast of Marin and San Francisco compared to observations in December.

##### Non-toxic Species

Winter storms produced lots of detritus and kept phytoplankton diversity and abundance quite low. Diatoms were the

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

For More Information Please Call:  
(510) 412-4635

For Recorded Biotoxin Information Call:  
(800) 553-4133

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most common group observed, and included such common species as *Chaetoceros*, *Skeletonema*, *Biddulphia*, *Ditylum*, and *Thalassiosira*. Common dinoflagellates included *Ceratium* spp. (*C. furca* was abundant in Crescent City in mid-January) and *Prorocentrum micans*.



Figure 4. Distribution of shellfish biotoxins in Northern California during January, 2005.

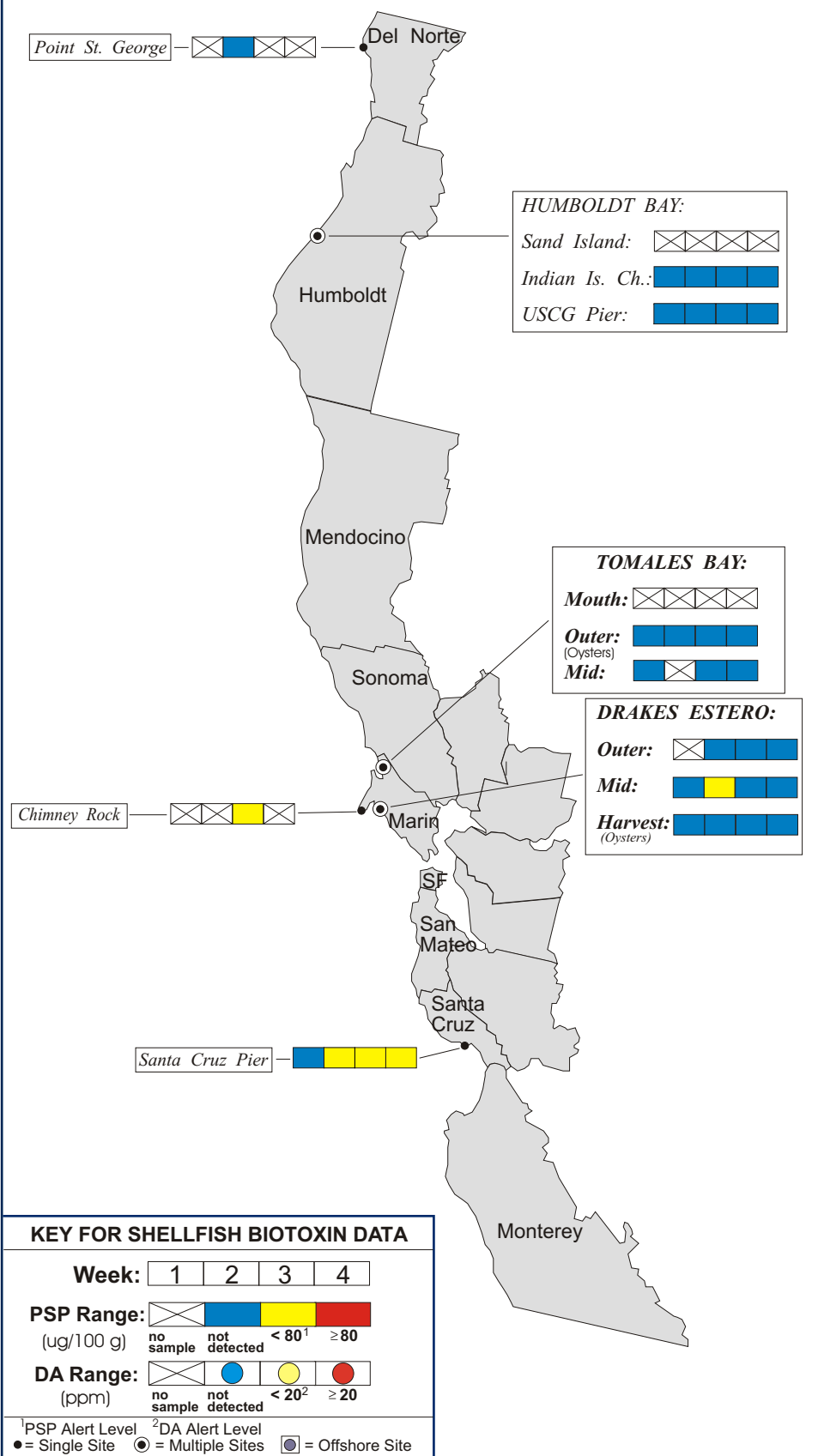


Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during January, 2005.

COUNTY	AGENCY	# SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	1
<b>Humboldt</b>	Coast Seafood Company	8
<b>Mendocino</b>	None Submitted	
<b>Sonoma</b>	None Submitted	
<b>Marin</b>	Cove Mussel Company	3
	Hog Island Oyster Company	5
	Johnson Oyster Company	16
	Marin Oyster Company	3
<b>San Francisco</b>	None Submitted	
<b>San Mateo</b>	None Submitted	
<b>Santa Cruz</b>	U.C. Santa Cruz	4
<b>Monterey</b>	None Submitted	
<b>San Luis Obispo</b>	Williams Shellfish Company	7
	Morro Bay National Estuary Program	2
<b>Santa Barbara</b>	Santa Barbara Mariculture Company	6
	U.C. Santa Barbara Marine Science Institute	4
<b>Ventura</b>	CDHS Volunteer (Bill Weinerth)	3
<b>Los Angeles</b>	Aquarium of the Pacific Long Beach	2
	Los Angeles County Health Department	1
<b>Orange</b>	None Submitted	
<b>San Diego</b>	Carlsbad Aquafarms, Inc.	3
	Scripps Institute of Oceanography	4
	CDHS Volunteer (Paul Sims)	1

### QUARANTINES:

The State Health Director issued a health advisory in December warning the public not to eat sport-harvested shellfish from the San Luis Obispo coast. This action was taken as a result of dangerous levels of PSP toxins in samples from this region.

The health advisory issued on June 10 remained in effect. This advisory warned consumers to avoid eating sport-harvested shellfish from Humboldt and Del Norte counties and was the result of dangerous levels of domoic acid in razor clams collected from this region.

The annual quarantine on the sport-harvesting of mussels was rescinded at midnight on October 31 as scheduled. This annual quarantine goes into effect each year on May 1, unless unusual early season toxicity prompts an earlier start.

The annual mussel quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries. This quarantine does not affect the commercial shellfish growing areas in California. All commercial shellfish growers certified by the State of California are required to submit routine samples for biotoxin analysis, allowing us to closely monitor for the occurrence of any toxin. Harvesting closures are imposed if toxin levels reach the federal alert level.

Persons taking any clams or scallops are advised to remove and discard the dark parts (i.e., the digestive organs or viscera).

Contact the "Biotoxin Information Line" at 1-800-553-4133 or (510) 412-4643 for a current update on marine biotoxin activity.

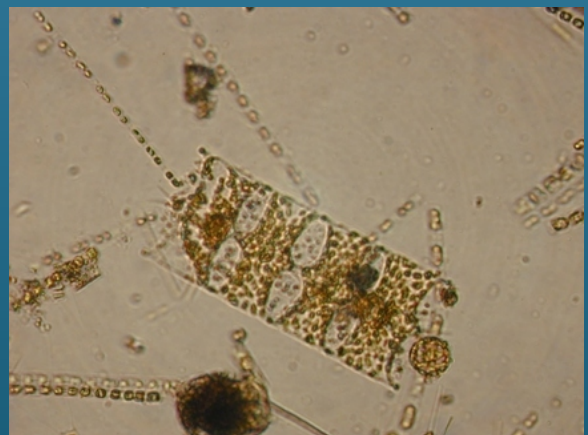
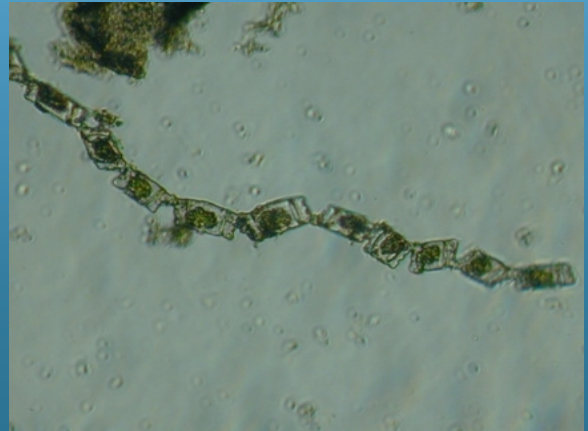




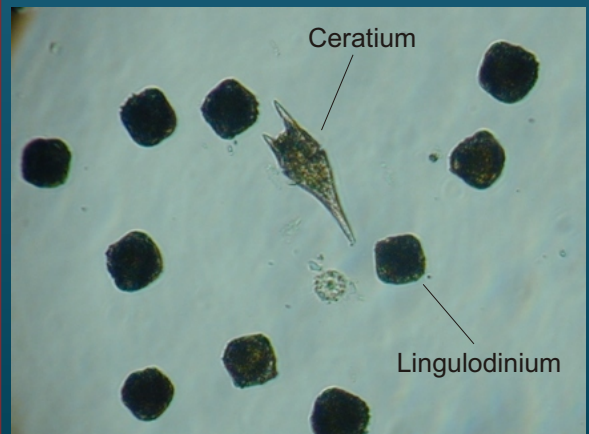
Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during January, 2005.

COUNTY	AGENCY	# SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	2
<b>Humboldt</b>	Coast Seafood Company	4
	DHS Volunteer (Jacki Riley)	1
<b>Mendocino</b>	None Submitted	
<b>Sonoma</b>	Bodega Marine Laboratory	1
	CDHS Volunteer (Cathleen Camon)	1
<b>Marin</b>	CDHS Volunteers (Brent Anderson, Mary Von Tolksdorf, Marjorie Siegel, Richard Plant)	7
	DHS Marine Biotoxin Monitoring Program	1
	Johnson Oyster Company	8
<b>Contra Costa</b>	None Submitted	
<b>San Francisco</b>	CDHS Volunteer (Eugenia McNaughton)	5
<b>San Mateo</b>	San Mateo County Environmental Health Department	2
<b>Santa Cruz</b>	U.C. Santa Cruz	4
<b>Monterey</b>	CDHS Volunteer (Jerry Norbn)	1
	Pacific Cetacean Group	2
<b>San Luis Obispo</b>	CDHS Volunteers (Renee and Auburn Atkins, Richard Welch, Bill Schwebel)	5
	Morro Bay National Estuary Program	3
	Tenera Environmental	2
	U.C. Santa Barbara Marine Science Institute	1
<b>Santa Barbara</b>	U.C. Santa Barbara Marine Science Institute	4
	Santa Barbara Mariculture Company	4
	Santa Barbara City College	1
<b>Ventura</b>	None Submitted	
<b>Los Angeles</b>	CDHS Volunteer (Richard Weaver)	2
	Aquarium of the Pacific Long Beach	1
	Los Angeles County Sanitation District	2
	Los Angeles Regional Water Quality Control Board	1
<b>Orange</b>	Ocean Institute	1
<b>San Diego</b>	CDHS Volunteer (Paul Sims)	1
	Scripps Institute of Oceanography	4

## PHYTOPLANKTON GALLERY



The two photos above are of different species of the diatom *Biddulphia* (*Odontella*). These diatoms were common along the Northern California coast, particularly at sites in Marin County, during December.



The dinoflagellates *Lingulodinium* and *Ceratum* continued to be common at sites along the Southern California coast.